TECHNICAL BASIS FOR TIER I OPERATING PERMIT

DATE: September 11, 2002

PERMIT WRITER: Tom Anderson

PERMIT COORDINATOR: Bill Rogers

SUBJECT: ***TECHNICAL MEMORANDUM FOR TIER I OPERATING PERMIT***
AIRS Facility No. 045-00001, Boise Cascade Corp., Emmett
Final Tier I Operating Permit

Permittee:	Boise Cascade Corp. Emmett Wood Products Complex
Permit Number:	045-00001
Air Quality Control Region:	063
AIRS Facility Classification:	A
Standard Industrial Classification:	4961
Zone:	11
UTM Coordinates:	539.095, 4857.616
Facility Mailing Address:	P.O. Box 476 Emmett, ID 83716
County:	Gem
Facility Contact Name and Title:	Derrick Crowther, Regional Environmental Engineer
Contact Name Phone Number:	(208) 365-4431 ext. 14
Responsible Official Name and Title:	Bruce D. Cartmel, Regional Manager
Exact plant Location:	Mill Road and Main Street
General Nature of Business & Kinds of Products:	Cogeneration facility

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Acronyms, Units, and Chemical Nomenclature

acfm	actual cubic feet per minute
AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EPA	U.S. Environmental Protection Agency
gr	grain (1 lb = 7,000 grains)
HAPs	hazardous air pollutants
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
lb/hr	pound per hour
km	kilometer
MACT	maximum achievable control technology
MMBtu/hr	million British thermal units per hour
mW	megawatt
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_x	nitrogen oxides
O&M	operation and maintenance (manual)
NSPS	New Source Performance Standards
PM	particulate matter
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to 10 micrometers
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTE	potential to emit
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SO_2	sulfur dioxide
T/yr	tons per year (1 T = 2,000 lb)
VOC	volatile organic compound

PUBLIC COMMENT/AFFECTED STATES/EPA REVIEW SUMMARY

A 30-day public comment period for the Boise Cascade Corp. draft Tier I operating permit was held in accordance with IDAPA 58.01.01.364, *Rules for the Control of Air Pollution in Idaho*. The comment period ran May 15 through June 14, 2002.

IDAPA 58.01.01.008.01, defines *affected states* as: "*All states: whose air quality may be affected by the emissions of the Tier I source and that are contiguous to Idaho; or that are within fifty (50) miles of the Tier I source.*" A review of the site location information included in the permit application indicates that the facility is located with 50 miles of a state border. Therefore, the state of Oregon was provided an opportunity to comment on the draft Tier I operating permit.

Summary of Comments

No comments were received from any party, and a hearing was not requested.

EPA 45-Day Review

At the conclusion of the public comment period, EPA was sent the proposed operating permit and the technical analysis memorandum for their 45-day review period. EPA did not provide any comments on the permit.

1. PURPOSE

The purpose of this memorandum is to explain the legal and factual basis for this draft Tier I operating permit in accordance with IDAPA 58.01.01.362, *Rules for the Control of Air Pollution in Idaho.*

The DEQ has reviewed the information provided by Boise Cascade Corp. (Boise Cascade) regarding the operation of the Emmett Wood Products Complex located in Emmett, Idaho. This information was submitted based on the requirements to submit a Tier I operating permit in accordance with IDAPA 58.01.01.300.

2. SUMMARY OF EVENTS

On May 15, 1995, DEQ received the Tier I operating permit application from Boise Cascade. The permit was prepared by Trinity Consultants Inc., the facility's consulting firm.

On July 12, 2000, DEQ received a Tier I application update from Boise Cascade. Kleinfelder, the facility's consulting firm, prepared the application update.

On September 11, 2000, the updated application was determined complete.

On January 17, 2001, DEQ issued a draft permit to Boise Cascade for their review.

On January 29, 2001, DEQ received comments from Boise Cascade on the draft permit.

On May 18, and November 6, 2001, and January 30, and February 20, 2002, DEQ received updates from Boise Cascade regarding the operations at their Emmett facility.

A 30-day public comment period was held from May 15 through June 14, 2002. No comments were received and no entity requested a public hearing.

3. BASIS OF THE ANALYSIS

The following documents were relied upon in preparing this memorandum and the Tier I operating permit:

- Tier I operating permit application, received May 15, 1995; and supplemental application materials received on July 12, 2000; May 18, 2001; November 6, 2001; January 30, 2002; and February 20, 2002
- Permit to Construct No. 045-00001 issued February 4, 1981, modified on May 14, 1981; July 8, 1982; October 8, 1982; September 27, 1996; August 23, 1997; and February 15, 2001
- Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, January 1995, Office of Air Quality Planning and Standards, EPA
- Guidance developed by the EPA and DEQ
- Title V permits issued by other jurisdictions
- Documents and procedures developed in the Title V Pilot Operating Permit Program

4. *FACILITY DESCRIPTION*

4.1 GENERAL PROCESS DESCRIPTION

The facility was originally constructed as a sawmill with two wood fired boilers, several lumber drying kilns, and a finishing plant. A plywood plant, decking plant, and laminated beam plant were later constructed and operated. Over time, many operations have been shut down and removed. All that remains is the power plant. The power plant is classified as SIC 4961. The power plant is permitted to emit CO and PM at levels greater than 100 T/yr.

The power plant produces steam from two wood-fired Zurn boilers each rated at 90,000 lb/hr. The steam is sent to a 15 mW generator that generates electricity to be sold to the Idaho Power Co. grid. No steam is used in any process. All process steam delivery equipment has been removed. In 1997, a supplemental natural gas burner was installed in each boiler. This burner can provide up to 40% of the required heat input.

4.2 FACILITY CLASSIFICATION

The facility is classified as major, in accordance with IDAPA 58.01.01.008.10, for Tier I permitting purposes because the facility emits or has potential to emit a regulated air pollutant in amounts greater than or equal to 100 T/yr. The facility is also major as defined in IDAPA 58.01.01.006.55; and is subject to PSD permitting requirements because the facility's emits or has the potential to emit a regulated air pollutant in amounts greater than or equal to 250 T/yr. The SIC defining the facility is 4961, and the AIRS/AFS facility classification is A. The facility is not subject to federal NSPS requirements in accordance with 40 CFR 60, NESHAP requirements in accordance with 40 CFR 61, or MACT requirements in accordance with 40 CFR 63.

4.3 AREA CLASSIFICATION

The facility is located in Emmett, Idaho which is located in Gem County. Gem County is located within AQCR 63. This area is unclassified for all federal and state criteria air pollutants. There are no Class I areas within 10 km of the facility.

4.4 PERMITTING HISTORY

A PTC was issued to Boise Cascade for its boilers on February 4, 1981. The PTC was modified on May 14, 1981; July 8, 1982; October 8, 1982; September 27, 1996; August 23, 1997; and February 15, 2001. On January 20, 1995, Boise Cascade received a Consent Order from DEQ concerning the operation of the boilers. The Consent Order requires Boise Cascade to develop and implement an O&M manual for the boilers and associated air pollution control equipment. PTC No. 045-00001 was modified on September 27, 1996, to allow the use of new emission factors for CO obtained by Boise Cascade. The new emission factors raised the permitted emission rate for CO from 192 T/yr, to 2104 T/yr. Permit to Construct No. 045-00001 was modified on September 23, 1997, to allow the installation of a supplemental natural gas burner on each Zurn boiler. This modification required compliance with 40 CFR 60 Subpart Db. Boise Cascade completed emissions testing in 1999, which demonstrated that 40 CFR 60 Subpart Db did not apply to the power plant. On August 21, 2000, EPA Region X staff determined that 40 CFR 60 Subpart Db did not apply to the power plant. On February 15, 2001, PTC No. 045-00001 was modified to eliminate the requirement to comply with 40 CFR 60 Subpart Db.

4.5 EMISSIONS DESCRIPTION

The Boise Cascade Emmett Wood Products Complex power plant is currently permitted to emit up to 2,104 T/yr of CO and 180 T/yr of PM.

5. *REGULATORY ANALYSIS*

5.1 FACILITY-WIDE APPLICABLE REQUIREMENTS

5.1.1 Fugitive Particulate Matter - IDAPA 58.01.01.650-651

5.1.1.1 Requirement

Permit Condition 2.1 states that all reasonable precautions shall be taken to prevent particulate matter from becoming airborne in accordance with IDAPA 58.01.01.650-651.

5.1.1.2 Compliance Demonstration

Permit Condition 2.2 states that the permittee is required to monitor and maintain records of the frequency and the methods used by the facility to reasonably control fugitive particulate emissions. IDAPA 58.01.01.651 gives some examples of ways to reasonably control fugitive emissions which include using water or chemicals, applying dust suppressants, using control equipment, covering trucks, paving roads or parking areas, and removing materials from streets.

Permit Condition 2.3 requires that the permittee maintain a record of all fugitive dust complaints received. In addition, the permittee is required to take appropriate corrective action as expeditiously as practicable after a valid complaint is received. The permittee is also required to maintain records that include the date that each complaint was received and a description of the complaint, the permittee's assessment of the validity of the complaint, any corrective action taken, and the date the corrective action was taken.

To ensure that the methods being used by the permittee to reasonably control fugitive particulate matter emissions whether or not a complaint is received, Permit Condition 2.4 requires that the permittee conduct monthly inspections of the facility. The permittee is required to inspect potential sources of fugitive emissions during daylight hours and under normal operating conditions. If the permittee determines that the fugitive emissions are not being reasonably controlled the permittee shall take corrective action as expeditiously as practicable. The permittee is also required to maintain records of the results of each fugitive emission inspection.

Permit Conditions 2.3 and 2.4 require the permittee to take corrective action as expeditiously as practicable. In general, the Department believes that taking corrective action within 24 hours of receiving a valid complaint or determining that fugitive particulate emissions are not being reasonably controlled meets the intent of this requirement. However, it is understood that, depending on the circumstances, immediate action or a longer time period may be necessary.

5.1.2 Control of Odors - IDAPA 58.01.01.775-776

5.1.2.1 Requirement

Permit Condition 2.5 and IDAPA 58.01.01.776 both state: *"No person shall allow, suffer, cause or permit the emission of odorous gases, liquids or solids to the atmosphere in such quantities as to cause air pollution."* This condition is currently considered federally enforceable until such time it is removed from the SIP, at which time it will be a state-only enforceable requirement.

5.1.2.2 Compliance Demonstration

Permit Condition 2.6 requires the permittee to maintain records of all odor complaints received. If the complaint has merit, the permittee is required to take appropriate corrective action as expeditiously as practicable. The records are required to contain the date that each complaint was received and a description of the complaint, the permittee's assessment of the validity of the complaint, any corrective action taken, and the date the corrective action was taken.

Permit Condition 2.6 requires the permittee to take corrective action as expeditiously as practicable. In general, the Department believes that taking corrective action within 24 hours of receiving a valid odor complaint meets the intent of this requirement. However, it is understood that, depending on the circumstances, immediate action or a longer time period may be necessary.

5.1.3 Visible Emissions - IDAPA 58.01.01.625

5.1.3.1 Requirement

IDAPA 58.01.01.625 and Permit Condition 2.7 state: *"(No) person shall discharge any air pollutant to the atmosphere from any point of emission for a period or periods aggregating more than three minutes in any 60-minute period which is greater than 20% opacity as determined . . ."* by IDAPA 58.01.01.625. This provision does not apply when the presence of uncombined water, NO_x, and/or chlorine gas is the only reason(s) for the failure of the emission to comply with the requirements of this rule.

5.1.3.2 Compliance Demonstration

To ensure reasonable compliance with the visible emissions rule, Permit Condition 2.8 requires that the permittee conduct routine visible emissions inspections of the facility. The permittee is required to inspect potential sources of visible emissions, during daylight hours and under normal operating conditions. The visible emissions inspection consists of a see/no see evaluation for each potential source of visible emissions. If any visible emissions are present from any point of emission covered by this section, the permittee must either take appropriate corrective action as expeditiously as practicable, or perform a Method 9 opacity test in accordance with the procedures outlined in IDAPA 58.01.01.625. A minimum of thirty observations shall be recorded when conducting the opacity test. If opacity is determined to be greater than 20% for a period or periods aggregating more than three minutes in any sixty-minute period, the permittee must take corrective action and report the exceedence in its annual compliance certification and in accordance with the excess emissions rules in IDAPA 58.01.01.130-136. The permittee is also required to maintain records of the results of each visible emissions inspection and each opacity test when conducted. These records must include the date of each inspection, a description of the permittee's assessment of the conditions existing at the time visible emissions are present, any corrective action taken in response to the visible emissions, and the date corrective action was taken.

It should be noted that if a specific emission unit has a specific compliance demonstration method for visible emissions that differs from Permit Condition 2.8, then the specific compliance demonstration method overrides the requirement of Condition 2.8. Condition 2.8 is intended for small sources that would generally not have any visible emissions.

Permit Condition 2.8 requires the permittee to take corrective action as expeditiously as practicable. In general, DEQ believes that taking corrective action within 24 hours of discovering visible emissions meets the intent of this requirement. However, it is understood that, depending on the circumstances, immediate action or a longer time period may be necessary.

5.1.4 Startup, Shutdown, Scheduled Maintenance, Safety Measures, Upset and Breakdown- IDAPA58.01.01.130-136

5.1.4.1 Requirement

Permit Condition 2.9 requires that the permittee comply with the requirements of IDAPA 58.01.01.130-136 for startup, shutdown, scheduled maintenance, safety measures, upset, and breakdowns. This section is fairly self-explanatory and no additional detail is necessary in this technical analysis. It should; however, be noted that subsections 133.02, 133.03, 134.04, and 134.05 are not specifically included in the permit as applicable requirements. These provisions of the *Rules* only apply if the permittee anticipates requesting consideration under subsection 131.02 of the *Rules* to allow DEQ to determine if an enforcement action to impose penalties is warranted. Section 131.01 states "*. . . The owner or operator of a facility or emissions unit generating excess emissions shall comply with Sections 131, 132, 133.01, 134.01, 134.02, 134.03, 135, and 136, as applicable. If the owner or operator anticipates requesting consideration under Subsection 131.02, then the owner or operator shall also comply with the applicable provisions of Subsections 133.02, 133.03, 134.04, and 134.05.*" Failure to prepare or file procedures pursuant to Sections 133.02 and 134.04 is not a violation of the *Rules* in and of itself, as stated in subsections 133.03.a and 134.06.b. Therefore, since the permittee has the option to follow the procedures in Subsections 133.02, 133.03, 134.04, and 134.05; and is not compelled to, the subsections are not considered applicable requirements for the purpose of this permit and are not included as such.

5.1.4.2 Compliance Demonstration

The compliance demonstration is contained within the text of Permit Condition 2.9. No further clarification is necessary here.

5.1.5 Excess Emissions

Boise Cascade has not identified any circumstances for startup, shutdown, or maintenance that would create excess emissions. The permit does not include any review or incorporation of excess emissions plans.

5.1.6 Open Burning

See Permit Condition 2.12.

5.1.7 Renovation/Demolition

See Permit Condition 2.13.

5.1.8 Chemical Accident Prevention Provisions

See Permit Condition 2.14.

5.1.9 Recycling and Emission Reductions

See Permit Condition 2.19.

5.1.10 Fuel-Burning Equipment

See Permit Condition 2.16.

5.1.11 Fuel-Sulfur Content

The Boise Cascade facility in Emmett is not authorized to use any liquid fuel subject to fuel-sulfur content regulation under IDAPA 58.01.01.728.

5.1.12 NSPS

The Boise Cascade facility in Emmett is not subject to any subpart of 40 CFR 60.

5.1.13 Compliance Testing

See Permit Condition 2.18.

5.1.14 Test Methods

See Permit Condition 2.15.

5.1.15 Reports and Certifications

See Permit Condition 2.10.

5.1.16 Monitoring and Recordkeeping

See Permit Condition 2.11.

5.2 Power Plant

5.2.1 Emissions Unit Description

The power plant consists of two 159 MMBtu/hr spreader stoker Zurn boilers, each rated at 90,000 pounds of steam per hour. The boilers were installed in 1982. Each boiler is a dual-fuel fired boiler with wood fuel as the primary fuel and natural gas as the secondary fuel. The boilers are permitted to operate 24 hours per day, seven days per week, 52 weeks per year. Each boiler is equipped with a multiclone as its primary control equipment and a wet scrubber as secondary control equipment.

The stack parameters for each boiler are as follows:

Stack exit height:	60 feet
Stack exit diameter:	5.46 feet
Stack exit gas flowrate:	34,500 acfm
Stack exit temperature:	150°F

The power plant is currently not in operation. Boise Cascade proposes to keep the facility permitted so in the event electric power rates increase, the facility can be brought on line quickly to generate electricity. However, Boise Cascade is required to notify DEQ in writing 30 days prior to operating the power plant.

5.2.2 Permit Requirement - Grain Loading Standard - [IDAPA 58.01.01.675] and PM Limits [PTC No. 045-00001]

5.2.2.1 Applicability

See Permit Condition 3.1. The information in the following table was used to arrive at the combined fuel usage PM limit.

Table 5.1 COMBINED FUEL USAGE

FUEL TYPE	ALLOWABLE PARTICULATE EMISSIONS	PERCENT OXYGEN
Hog fuel only	0.08 gr/dscf	8%
Combination of hog fuel and natural gas [c]	0.08X + 0.011Y[a]	8%

[a] For natural gas, correct 0.015 gr/dscf at 3% O_2 to grain loading at 8% O_2:
[c] (gr/dscf, at 8% O_2) = 0.015 gr/dscf x (21-8)/(21-3) = 0.011 gr/dsc[f]

The grain loading standard at 8% O_2 for the combination of natural gas and hog fuel combustion can be expressed as the following equation:

Allowable PM emissions = 0.08X + 0.011Y, corrected to 8% oxygen

Where:

X = the percentage of total heating input derived from the combustion of hog fuel

Y = the percentage of total heating input derived from the combustion of natural gas

References:
"Combustion Evaluation in Air Pollution Control", EPA APTI Course 427, Draft Revision, March 1994, P.125;
40 CFR 60.43a(h)(1);
Permit to Construct 045-00001 issued September 23,1997, established a 180 T/yr PM emission limit for the boilers

The permittee is required to develop and maintain an O&M manual for the boilers and their respective control equipment. Proper maintenance and operation of the boilers and the control equipment will help ensure the boilers will meet the grain loading standards, and insure compliance with General Provision B of PTC No. 045-00001, issued February 15, 2001.

The permittee is required to install, operate, and maintain in accordance with manufacture's specifications, equipment to measure the oxygen content of the stack gas, and the pressure drop across and the water flow rate through the wet scrubber. These monitors are required to determine compliance with the grain loading standard and the PM emission rate.

5.2.2.2 Monitoring and Recordkeeping

When combusting natural gas, the permittee shall monitor and record the percentage of heating input from hog fuel and the percentage of heating input from natural gas. This information is required to calculate the allowable PM emissions during combination fuel firing.

The permittee shall be required to monitor and record the oxygen content of the stack gas (Permit Condition 3.13). This information is required to convert the calculated PM emission rate to the emission rate at 8% oxygen. When the source test required by Section 3.16 of the permit is completed, this monitoring requirement may be eliminated, as the oxygen content of the stack gas will be measured, and related as part of the concentration measured and reported.

To insure compliance with General Provision B of PTC No. 045-00001, issued February 15, 2001, the permittee will be required to monitor and record the pressure drop across, and the water flow rate through, each wet scrubber (See Permit Condition 3.14).

5.2.2.3 Testing

See Permit Condition 3.16.

5.2.2.4 Reporting

See Permit Condition 3.17.

5.2.3 Permit Requirement - Visible Emissions/Opacity - [IDAPA 58.01.01.625]

5.2.3.1 Applicability

See Permit Condition 3.4.

5.2.3.2 Monitoring and Recordkeeping

See Permit Condition 3.15.

5.2.3.3 Testing

See Permit Condition 3.16.

5.2.3.4 Reporting

See Permit Condition 3.17.

5.2.4 Permit Requirement - CO Emission Limit - [PTC No. 045-00001]

5.2.4.1 Applicability

See Permit Condition 3.3.

5.2.4.2 Monitoring and Recordkeeping

Permit to Construct No. 045-00001, issued September 27, 1996, established the annual CO emission rate. The technical memorandum associated with that permit uses the annual steam rate as the compliance determination method for CO. No further monitoring or recordkeeping is required by this permit.

5.2.4.3 Testing

See Permit Condition 3.16.

5.2.4.4 Reporting

See Permit Condition 3.17.

5.2.5 Permit Requirement - Steam Production - [PTC No. 045-00001]

5.2.5.1 Applicability

See Permit Condition 3.5.

5.2.5.2 Monitoring and Recordkeeping

See Permit Condition 3.11

5.2.5.3 Testing

None required.

5.2.5.4 Reporting

See Permit Condition 3.17.

6. *INSIGNIFICANT ACTIVITIES*

Listed below are the insignificant activities described by the source in accordance with IDAPA 58.01.01.317:

Table 6.1 INSIGNIFICANT ACTIVITIES

Description	Insignificant Activities Section Citation IDAPA 58.01.01.17.01.B.I
Facility ash storage pile (S-2)	30
Facility delivery (TP-1)	30
Conveyor feeding fuel house from fuel pile (TP-2)	30
Gasoline storage tank (T1)	30
Diesel fuel storage tank (T5)	3, 30

7. *ALTERNATIVE OPERATING SCENARIOS*

All alternate operating scenarios proposed by Boise Cascade were withdrawn in a letter to DEQ dated February 20, 2002.

8. *TRADING SCENARIOS*

No trading scenarios were proposed by Boise Cascade in the application materials.

9. *COMPLIANCE PLAN AND COMPLIANCE CERTIFICATION*

9.1 COMPLIANCE PLANS

Boise Cascade certified compliance with all applicable requirements. No compliance plan was submitted.

9.2 Compliance Certification

Boise Cascade is required to periodically certify compliance in accordance with General Permit Provision 21.

10. ACID RAIN PERMIT

Boise Cascade is not subject to the Acid Rain permitting requirements of 40 CFR 72 through 75.

11. AIRS DATABASE

AIR PROGRAM / POLLUTANT	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	TITLE V	AREA CLASSIFICATION A – Attainment U – Unclassifiable N – Nonattainment
SO_2	B						U
No_x	B						U
CO	A					A	U
PM_{10}							U
PT (Particulate)	A					A	U
VOC	B						U
THAP (Total HAPs)	B						
			APPLICABLE SUBPART				

AIRS/AFS Classification Codes:

A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For NESHAP only, class "A" is applied to each pollutant which is below the 10 T/yr threshold, but which contributes to a plant total in excess of 25 T/yr of all NESHAP pollutants.

SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.

B = Actual and potential emissions below all applicable major source thresholds.

C = Class is unknown.

ND = Major source thresholds are not defined (e.g., radionuclides).

12. REGISTRATION FEES

This facility is a major facility as defined by IDAPA 58.01.01.008.10, and is therefore subject to registration and registration fees in accordance with IDAPA 58.01.01.387.

13. RECOMMENDATION

Based on the Tier I application and review of the federal regulations and state rules, staff recommends that DEQ issue final Tier I operating permit No. 045-00001 to Boise Cascade Corp. for their Emmett Wood Products Complex.

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cc: Mike McGown, Boise Regional Office
Sherry Davis, Technical Services Division
Laurie Kral, EPA - Region 10
Joan Lechtenberg, Air Quality Division